

ing the auxiliary battery module in parallel with a primary battery of the electric vehicle;
providing electrical power from the auxiliary battery module to an electric motor of the electric vehicle via a first electrical connector at the auxiliary battery module and a second electrical connector at the electric vehicle that mates with the first electrical connector for propelling the electric vehicle;
monitoring a temperature of the main battery of the electric vehicle and a temperature of the auxiliary battery module; and
cooling the auxiliary battery module based on said monitoring with an integrated cooling system of the auxiliary battery module during operation of the electric vehicle, the integrated cooling system comprising a conduit for circulating coolant within the auxiliary battery module.

14. The method of claim **3**, comprising:
connecting a first fluid connector at a battery housing of the auxiliary battery module that is connected to the conduit within the battery housing to a second fluid connector at the electric vehicle; and

passing coolant from the electric vehicle through the first fluid connector and through the conduit in the auxiliary battery module.

15. The method of claim **13**, the integrated cooling system of auxiliary battery module being separate and distinct from a cooling system for cooling the primary battery.

16. The method of claim **13**, the integrated cooling system of auxiliary battery module comprising a closed coolant loop comprising a coolant line, a coolant pump configured to circulate coolant through the coolant line and within the auxiliary battery module, and a heat exchanger.

17. The method of claim **15**, the integrated cooling system of auxiliary battery module comprising a closed coolant loop comprising a coolant line, a coolant pump configured to circulate coolant through the coolant line and within the auxiliary battery module, and a heat exchanger.

18. The method of claim **16**, the integrated cooling system of the auxiliary battery comprising a refrigerant system configured to deliver refrigerant to the heat exchanger to cool the coolant in the coolant line.

19. (canceled)

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